

BASIS FOR THE AMENDMENT

Independent Claim 1 is been amended to include the limitations of dependent Claims 3 and 15. Independent Claim 4 has been amended to include the limitations of Claim 1. Claims 1, 4-14 and 16 are active in the present application. Claims 4-8 are currently withdrawn from prosecution.

Claims 2-3 and 15 are canceled. No new matter is added.

REQUEST FOR RECONSIDERATION

Applicants thank Examiner Chen for the helpful and courtesy discussion of April 20, 2006. During the discussion, Applicants' U.S. representative pointed to page 19, lines 17-22 as support that the original specification discloses an embodiment wherein the CMP stopper film consists of a polycarbosilane polymer.

Independent Claim 1 is now drawn to a chemical mechanical planarization stopper film that consists of a polycarbosilane consisting of monomer units of a particular structural unit.

Claim 1 is amended to include limitations previously presented in the Amendment filed on February 1, 2006. Applicants submit that no new issues are raised because the amendment adds only limitations previously considered during the prosecution of this application. Entry of the Amendment and consideration of the arguments herein is therefore appropriate.

The Office rejected previously presented dependent Claim 15 which requires that the CMP stopper film consist of an organosilicon polymer on the ground that Claim 15 adds new matter. Applicants draw the Office's attention to page 19, lines 17-22 of the originally filed specification. Example 1 discloses an embodiment wherein a film is formed from a solution of a polymer material (i.e. the solution (1) whose preparation is described on page 18, lines 11-19). The solution contains only two components; namely, a polycarbosilane polymer and cyclohexanone. After application of this solution on the substrate, the substrate is sintered at temperatures as high as 420°C for thirty minutes. Applicants submit that it is readily recognized by those of ordinary skill in the art that heating a cyclohexanone solution at a temperature of 420°C will result in complete evaporation of the solvent (i.e. the cyclohexanone). Thus, coating a substrate with the solution of Example 1, then heating at high temperature will provide a film of any non-volatile materials dissolved in the solution on

the surface of the substrate. Because the polycarbosilane is a polymeric material it is non-volatile and will remain on the surface of the substrate after heating at 420°C for thirty minutes. The film thus obtained will contain only the polycarbosilane. In other words, the film present on the surface of the substrate will be one that “consists of” polycarbosilane. Thus the Examples of the specification inherently describe an embodiment of the invention where the CMP stopper film consists of a polycarbosilane polymer.

Applicants therefore submit that the subject matter of dependent Claim 15 is sufficiently supported by the specification as originally filed and does not represent new matter. Applicants respectfully request the withdrawal of the rejection of dependent Claim 15 under 35 U.S.C. § 112, first paragraph.

The Office further rejected Claim 15 in view of a published application to Vincent (U.S. 2002/0142579). Applicants submit that the methods described in Vincent do not form the polycarbosilane polymer recited in present Claim 1. For example, Vincent discloses a method of forming a low dielectric constant interlayer dielectric film by reacting certain silicon-containing precursors. Films of Vincent are described as follows in paragraph [0013]:

The low k ILD films can be deposited as either OSG ($\text{Si}_a\text{O}_b\text{C}_c\text{H}_d$) or F-OSG ($\text{Si}_a\text{O}_b\text{C}_c\text{H}_d\text{F}_e$) films (wherein the atomic % of $a+b+c+d+e=100\%$ and $a=10-35\%$, $b=1-66\%$, $c=1-35\%$, $d=0-60\%$, and $e=0-25\%$).

Unlike the polycarbosilane polymer recited in present Claim 1, the polymers of Vincent must contain oxygen (e.g., as evidenced by the formulas for the OSG films in paragraph [0031] of Vincent wherein O_b is recited and b is from 1 to 66%).

Because Vincent does not disclose or suggest the particular polycarbosilane polymer of present Claim 1, Vincent cannot anticipate or render obvious the presently claimed subject matter.

Applicants respectfully request withdrawal of the rejection over Vincent.

The Office further rejected the claims of the present application as anticipated or obvious in view of a patent to Chen (U.S. 6,761,975). Applicants submit that the subject matter of present Claim 1, which requires that the CMP stopper film consist of a polycarbosilane, cannot be anticipated or rendered obvious by Chen. For example, Chen discloses coatings which contain “a small effective adhesion promoting amount of a certain polycarbosilane”. All of the compositions and films of Chen contain a minor amount of a polycarbosilane present as an adhesion promoter in compositions which contain many other additives and components. Because the compositions of Chen contain components other than the polycarbosilane, Chen cannot anticipate the presently claimed subject matter.

Applicants submit that use of the transitional phrase “consist of” signals a closed claim. In a closed claim, the only components of the polycarbosilane polymer are those explicitly recited in the claim, notwithstanding any conventional amounts of impurities etc. Because Chen does not disclose compositions and/or films which contain only the polycarbosilane polymer (e.g., films which consist of the polycarbosilane polymer), Chen cannot anticipate or render obvious the presently claimed subject matter. Applicants respectfully request withdrawal of the rejections in view of Chen.

The Office also rejected the claims in view of a patent to Nakano (U.S. 5,907,008). Nakano describes “a black coloring composition.” (See Title and Abstract). The Office points to column 36, lines 62-67 and column 37, lines 47-48 as support for the rejection. However, Applicants note that this disclosure of Nakano describes compositions that contain a black pigment. Thus the disclosure of Nakano does not describe a CMP stopper film that consists of a polycarbosilane polymer. Applicants request withdrawal of the rejections.

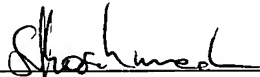
REJOINDER

Withdrawn Claims 4-8 are amended herein to include the limitations of the polycarbosilane stopper film of Claim 1. Applicants request rejoinder and allowance of the withdrawn claims upon a determination that the subject matter of Claim 1 is allowable.

As discussed in detail above, Applicants submit that the prior art relied upon by the Office does not disclose and/or suggest all of the present claim limitations and cannot anticipate or render obvious the presently claimed subject matter. Applicants respectfully request withdrawal of the rejections and allowance of all now-pending claims.

Respectfully submitted,

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